Published in final edited form as:

Infect Dis Clin North Am. 2017 December ; 31(4): xiii–xv. doi:10.1016/j.idc.2017.08.001.

Aging has unique effects on the risks, presentation, diagnosis, treatment and prognosis of infectious diseases

David H. Canaday, MD^{1,2} and Robin L.P. Jump, MD, PhD^{1,2,3}

¹Geriatric Research Education and Clinical Center (GRECC), Louis Stokes Cleveland Department of Veterans Affairs Medical Center (LSCVAMC), Cleveland, Ohio

²Division of Infectious Diseases and HIV Medicine, Department of Medicine, Case Western Reserve University, Cleveland, Ohio

³Specialty Care Center of Innovation, Infectious Disease Section, Medical Division and Research Services, LSCVAMC, Cleveland, Ohio

Keywords

Older adults; immunosenescence; frailty; thermoregulation; infection

Body

By the year 2040, 1 out of every 5 Americans will be over the age of 65, with greater proportions of them living into their 80s than ever before [1]. According to the US Congressional Budget Office, the outlay by Medicare is overwhelmingly for care of citizens age 65 and older. These currently account for 3.7% (710 billion USD) of the US Gross Domestic Product (GDP), with an estimated rise to 7.0% (4.3 trillion USD) in the next 30 years [2]. From a purely economic perspective, the incentive to provide optimal and appropriate medical care in this older population is enormous.

With aging comes increased risk of infection. This is in part due to aging of the immune system, termed immunosenescence and, in part to the short- and long-lasting effects of other medical illnesses. Of the top 10 leading causes of death in older adults, 2 (influenza & pneumonia and septicemia) are directly related to infection. Furthermore, infections likely play an important role in several of the other leading causes of death including chronic low respiratory disease, Alzheimer's disease, diabetes and potentially even myocardial infarction and cerebrovascular deaths due to the infection-induced prothrombotic state [3].

Geriatrics emerged as a unique discipline in the 1940s, expanding from Britain to the US, with the first certifying examination in geriatric medicine in the US finally offered in 1988 [4]. The medical field was slow to recognize the unique and important role of medical

Corresponding author: David H. Canaday OR Robin L.P. Jump, MD, PhD, both at GRECC 111C(W), Louis Stokes Cleveland VA Medical Center, 10701 East Blvd, Cleveland, OH 44106. David.Canaday@case.edu; robin.jump@va.gov.

Disclosure statement:

DHC: Seqirus, Merck, and Sanofi Pasteur: Grant investigator/recipient

RLPJ: Pfizer and Steris: Grant investigator/recipient

providers specializing in older adults, relegating geriatricians to primary care or nursing homes. As our population ages, however, their medical and concomitant social, psychological and rehabilitation needs become increasingly complex. Involving clinicians with geriatrics training, even when the problem seems straight forward and the acuity is low, can improve the quality and safety of the care provided to older adults [5].

To that end, this issue of *Infections Disease Clinics of North America* seeks to bring a geriatric perspective to the diagnosis and treatment of infections in older adults. In general, treating infections in people >65 years follows the same general principles as it does in all age groups, namely source control and pathogen-directed therapy. Other important considerations, however, influence the recognition and response to infections in this population. While never asymptomatic, older adults manifest presenting signs and symptoms differently from younger adults. Additionally, goals of therapy must consider not only effective treatment but also preventing loss of function, avoidance of adverse drug events, minimizing the risk of acquiring drug-resistant pathogens and fending off other unintended consequences of antibiotic exposure, namely *Clostridium difficile* infection. Finally, sometimes attempting to diagnose and respond to concerns for infection may cause discomfort for older adults. Active monitoring or, in select cases, permitting an infection to be an end-of-life event, may constitute good medical care.

Our hope is that the content in this issue will inspire further work in this understudied yet evermore important area. We offer our sincere thanks to the authors for their dedication to improving the care of older adults with infections.

References

1. [Accessed 8 August 2016] Aging Statistics. Available at: http://www.aoa.acl.gov/Aging_Statistics/index.aspx
2. Congressional Budget Office. [Accessed 6 June 2017] The 2017 Long-Term Budget Outlook. 2017. Available at: <https://www.cbo.gov/publication/52480>
3. Xu J, Murphy SL, Kochanek KD, Bastian BA. Deaths: Final Data for 2013. Natl Vital Stat Rep. 2016; 64:1–119. [PubMed: 26905861]
4. Morley JE. A brief history of geriatrics. J Gerontol A Biol Sci Med Sci. 2004; 59:1132–1152. [PubMed: 15602058]
5. Deschodt M, Flamaing J, Haentjens P, Boonen S, Milisen K. Impact of geriatric consultation teams on clinical outcome in acute hospitals: a systematic review and meta-analysis. BMC Medicine. 2013; 11:48. [PubMed: 23433471]